d) hardening the thermoplastic or thermoset precursor layer; and

e) filling the thus formed array of microcups with a liquid crystal composition.

48. (New) The process of Claim 47 wherein said thermoplastic of thermoset precursor is selected from a group consisting of polyvalent acrylate or methacrylate, polyvalent vinyl, polyvalent epoxide, polyvalent allyl, and oligomers or polymers derived therefrom.

49. (New) The process of Claim 48 wherein said polyvalent vinyl is vinyl benzene, vinylsilane or vinyl ether.

50. (New) The process of Claim 48 wherein said oligomers or polymers are derived from those containing crosslinkable functional groups.

51. (New) The process of Claim 47 wherein the thermoplastic or thermoset precursor layer is embossed at a temperature near or above its glass transition temperature.

52. (New) The process of Claim 51 wherein the glass transition temperature ranges from about -70°C to about 150°C.

53. (New) The process of Claim 51 wherein the glass transition temperature ranges from about -20°C to about 100°C.

54. (New) The process of Claim 47 wherein the hardening of the thermoplastic or thermoset precursor layer is accomplished by cross-linking by radiation, heat, moisture, cooling or evaporation of a solvent or plasticizer.

55. (New) The process of Claim 47 wherein the hardening of the thermoplastic or thermoset precursor layer is accomplished by UV, visible light, near IR, or electron beam radiation.

56. (New) The process of Claim 47 wherein the pre-patterned male mold is released before, during or after the thermoplastic or thermoset precursor layer is hardened.

57. (New) A process for the preparation of well-defined cells to be used in a liquid crystal display, which process comprises the steps of:

a) coating a layer of radiation curable composition on a conductor film;

b) imagewise exposing the radiation curable layer;

c) removing the unexposed areas by a developer or solvent to reveal an array of microcups; and

d) filling the microcups with a liquid crystal composition.

58. (New) The process of Claim 57 wherein said microcups are filled with the liquid crystal composition and guest dye(s).

59. (New) The process of Claim 57 wherein said radiation curable composition comprises a material selected from the group consisting of polyvalent acrylate or methacrylate, polyvalent vinyl, polyvalent epoxide, polyvalent allyl, oligomers or polymers derived therefrom.

60. (New) The process of Claim 59 wherein said polyvalent vinyl is vinyl benzene, vinylsilane or vinyl ether.

61. (New) The process of Claim 59 wherein said oligomers or polymers are derived from those containing crosslinkable functional groups.

62. (New) The process of Claim 57 wherein the imagewise exposure is accomplished by UV, visible light, near IR, or electron beam radiation.

63. (New) A process for the preparation of an array of well-defined cells used in a liquid crystal display, which process comprises the steps of:

a) filling the microcups with a liquid crystal composition and a dispersion of thermoset or thermoplastic precursor which has a specific gravity lower than that of the liquid crystal composition; and

b) sealing the microcups by hardening the thermoset or thermoplastic precursor dispersion during or after it phase separates and forms a supernatant layer above the liquid crystal composition.

64. (New) The process of Claim 63 wherein the liquid crystal composition comprises guest dye(s).

65. (New) The process of Claim 63 wherein the thermoset or thermoplastic precursor dispersion comprises a material selected from the group consisting of acrylates or methacrylates, vinyls, polyvalent acrylates or methacrylates, cyanoacrylates, polyvalent vinyls, polyvalent epoxides, polyvalent isocyanates, polyvalent allyls, and oligomers or polymers derived therefrom.

66. (New) The process of Claim 65 wherein said polyvalent vinyl is vinyl benzene, vinylsilane or vinyl ether.

67. (New) The process of Claim 65 wherein said oligomers or polymers are derived from those containing crosslinkable functional groups.

68. (New) A process for the preparation of well-defined cells used in a liquid crystal display, which process comprises the steps of:

a) filling the microcups with a liquid crystal composition;

b) sealing the microcups by overcoating onto the said liquid crystal composition a thermoset or thermoplastic precursor composition which is at least partially immiscible with said liquid crystal composition and has a specific gravity lower than that of said liquid crystal composition; and

c) hardening said thermoplastic or thermoset precursor composition.

69. (New) The process of Claim 68 wherein the thermoplastic or thermoset precursor composition is diluted with a volatile solvent or solvent mixture which is evaporated after said composition is coated onto the liquid crystal display.

70. (New) The process of Claim 68 wherein the overcoated thermoplastic or thermoset precursor composition is cured by radiation, heat, moisture, or interfacial reactions at the interface between the overcoat and the liquid crystal display.

71. (New) The process of Claim 68 wherein the thermoplastic or thermoset precursor composition comprises a material selected from the group consisting of acrylates or methacrylates, vinyls, polyvalent acrylates or methacrylates, cyanoacrylates, polyvalent vinyls, polyvalent epoxides, polyvalent isocyanates, polyvalent allyls, oligomers or polymers derived therefrom.

72. (New) The process of Claim 71 wherein said polyvalent vinyl is vinyl benzene, vinylsilane or vinyl ether.

73. (New) The process of Claim 71 wherein said oligomers or polymers are derived from those containing crosslinkable functional groups.

74. (New) A process for the manufacture of a liquid crystal display, which process comprises the steps of:

a) preparing microcups by first coating a layer of thermoplastic or thermoset precursor on a conductor film followed by embossing the thermoplastic or thermoset precursor layer with a male mold or by imagewise exposing the thermoplastic or thermoset precursor layer and removing the unexposed areas;

b) filling in the thus formed array of microcups with a liquid crystal composition;

c) sealing the microcups; and

d) laminating the sealed array of liquid crystal cells with a second conductor film preferably pre-coated with an adhesive layer.

75. (New) The process of Claim 74 wherein the adhesive layer is hardenable or crosslinkable by heat, moisture or radiation, and is cured during or after lamination.

76. (New) A process for the manufacture of a multi-color liquid crystal display, which process comprises the steps of:

a) preparing microcups by first coating a layer of thermoplastic or thermoset precursor on a conductor film followed by embossing the thermoplastic or thermoset precursor layer with a male mold or by imagewise exposing the thermoplastic or thermoset precursor layer and removing the unexposed areas;

b) laminating the thus formed array of microcups with a layer of positive photoresist;

c) imagewise exposing the positive photoresist to selectively open the microcups in a predetermined area;

d) filling in the opened microcups with a liquid crystal composition with guest dye(s) of a first color;

e) sealing the microcups to enclose the liquid crystal composition with guest dye(s) of the first color;

f) repeating steps c) to e), if necessary, in different areas to generate groups of microcups containing the liquid crystal composition of different colors;

g) removing residual positive photoresist, if any; and

h) laminating the sealed array of liquid crystal cells with a second transparent conductor film precoated with an adhesive layer.

77. (New) The process of Claim 74 wherein the sealing of the microcups is accomplished by filling the microcups with the liquid crystal composition and a dispersion of a thermoplastic or thermoset precursor which has a specific gravity lower than that of the liquid crystal composition, followed by hardening the thermoplastic or thermoset precursor dispersion during or after it phase separates and forms a supernatant layer above the liquid crystal composition.

78. (New) The process of Claim 77 wherein the sealing of the microcups is accomplished by filling the microcups with the liquid crystal composition and guest dye(s).

79. (New) The process of Claim 76 wherein the sealing of the microcups is accomplished by filling the microcups with the liquid crystal composition and a dispersion of thermoplastic or thermoset precursor which has a specific gravity lower than that of the liquid crystal composition, followed by hardening the thermoplastic or thermoset precursor dispersion during or after it phase separates and forms a supernatant layer above the liquid crystal composition.

80. (New) The process of Claim 79 wherein the sealing of the microcups is accomplished by filling the microcups with the liquid crystal composition and guest dye(s).

81. (New) The process of Claim 74 wherein the sealing of the filled microcups is accomplished by overcoating onto the liquid crystal composition a thermoplastic or thermoset precursor composition which is at least partially immiscible with said liquid crystal composition and has a specific gravity lower than that of said liquid crystal composition, followed by hardening the thermoplastic or thermoset precursor composition.

82. (New) The process of Claim 76 wherein the sealing of the filled microcups is accomplished by overcoating onto the liquid crystal composition a thermoplastic or thermoset precursor composition which is at least partially immiscible with said liquid crystal composition and has a specific gravity lower than that of said liquid crystal composition, followed by hardening the thermoplastic or thermoset precursor composition.

83. (New) The process of Claim 74 wherein an adhesive layer is precoated on the positive photoresist and laminated onto the array of microcups.